REVISIONS TO THE STATE IMPLEMENTATION PLAN FOR THE CONTROL OF OZONE AIR POLLUTION

ATTAINMENT DEMONSTRATION FOR THE DALLAS/FORT WORTH OZONE NONATTAINMENT AREA

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
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DALLAS/FORT WORTH ATTAINMENT DEMONSTRATION
LIST OF ACRONYMS

CFR - Code of Federal Regulations
DFW - Dallas-Fort Worth
EI - Emissions Inventory
EPA - Environmental Protection Agency
FCAA - Federal Clean Air Act
FMVCP - Federal Motor Vehicle Control Program
HOV - High Occupancy Vehicle
I/M - Inspection and Maintenance
NAAQS - National Ambient Air Quality Standard
NCTCOG - North Central Texas Council of Governments
NO_x - Nitrogen Oxides
OAQPS - EPA's Office of Air Quality Planning and Standards
PM_{10} - Particulate Matter less than 10 microns
PPB - Parts Per Billion
RACT - Reasonably Available Control Technology
RFG - Reformulated Gasoline
ROP - Rate-of-Progress
SIP - State Implementation Plan
SO_2 - Sulfur Dioxide
TCM - Transportation Control Measures
TPD - Tons Per Day
TPY - Tons Per Year
TxDOT - Texas Department of Transportation
VOC - Volatile Organic Compound

DALLAS/FORT WORTH ATTAINMENT DEMONSTRATION
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VI: Ozone Control Strategy

A. INTRODUCTION

On March 18, 1999 the commission submitted a SIP to EPA addressing attainment of the ozone standard for the DFW area. The revised SIP also included ROP toward satisfying EPA's requirement of reasonable further progress in emission reductions for the DFW area for the years 1997-99.

Because of the short amount of time to develop the SIP, placeholder numbers were used until certain emission estimates could be more firmly established. As a result of the new calculations, the reductions toward ROP were short of the 9% target. The combination of this shortfall, plus the fact that the Attainment Demonstration was not approvable because it lacked the modeled control strategies and rules needed to bring the area into attainment, led to a determination of incompleteness by the EPA.

The SIP that was submitted in March 1999 contained for the first time a transportation conformity budget for NO_x. Because the SIP was found to be incomplete, the NO_x budget will be unusable and it will be extremely difficult for the DFW area to show conformity in the future. This will affect the region's ability to implement their metropolitan transportation plan.

Potential emission reduction credits have been reviewed that were not claimed in the March 1999 SIP in order to make up the ROP shortfall. The focus is on VOC reductions because fewer VOC reductions would be needed to make up the shortfall compared to NO_x emission reductions. The ROP lacked about 20% of the VOC reductions needed, which amounted to 5.87 tpd. Making complete the 9% ROP portion of the SIP should allow certain transportation projects to avoid being put on hold. Elements have been identified that were not previously considered that would bring SIP emission reduction credits in order to complete the 9% ROP requirements for the years 1996-99. These technical corrections are included in this revised SIP.

B. OZONE CONTROL STRATEGY

1. POLICY AND PURPOSE (Revised.)

a. Primary Purpose of the Plan (Revised.)

The primary purpose of this plan is in response to §181(b)(2)(A) of the FCAA Amendments of 1990 concerning the reclassification of an area for failing to attain the standard and to fulfill §182(c)(2) of the FCAA Amendments of 1990 concerning Attainment and Reasonable Further Progress Demonstrations, and various EPA guidance.

b. - d. (No change.)

2. SUMMARY OF THE PRINCIPAL ELEMENTS ADDRESSED WITHIN THIS PLAN (Revised.)

a. - c. (No change.)

d. Required Emission Reductions (Revised.)

This plan contains a revision to the emission reductions needed to achieve the 9% ROP SIP target. Details regarding this plan can be found in §VI.B.11.c.

This plan contains an estimate of the required levels of reductions of the ozone precursors VOC and NO_x necessary to achieve attainment of the 1-hour ozone standard in the DFW nonattainment area. These estimates are based on EPA protocols for projecting the EI from the 1995 and 1996 photochemical modeling base case EI out to 1999. The CAMx model was the tool used to determine the required level of reductions. Details regarding this plan can be found in §VI.B 9.b.

e. Sources of Emission Reductions (No change.)

3. - 8. (No change.)

9. SIP REVISIONS FOR THE ATTAINMENT DEMONSTRATION (Revised. See attached Chapter 5)

a. El Paso §818 Attainment Demonstration (No change.)
b. Dallas/Fort Worth Attainment Demonstration (Revised.)

10. - 13. (No change.)

14. HEARING REQUIREMENTS (Revised.)

a. - i. (No change.)

j. The state will conduct a public hearing for this SIP on September 7, 1999 at 7:00 p.m. at the City of Irving Central Library Auditorium, 801 West Irving Boulevard. The close of the public comment period will end on September 13, 1999.

CHAPTER 5: RATE OF PROGRESS

5.1 OVERVIEW

The DFW ozone nonattainment area was classified as a moderate area as a result of the FCAA Amendments of 1990. As a moderate area, the State of Texas was required to submit a SIP demonstrating a 15% VOC emission reduction, net of growth, for the DFW area for the years 1990 through 1996. The 15% ROP SIP was adopted by the commission on November 10, 1993 and May 13, 1994 and submitted to the EPA. The DFW area did not attain the 1-hour ozone standard by the November 1996 deadline. On March 18, 1999 the commission submitted a SIP to the EPA addressing attainment of the ozone standard for the DFW area. The revised SIP also included ROP toward satisfying EPA's requirement of reasonable further progress in emission reductions for the DFW area for the years 1997-99.

Because of the short amount of time to develop the SIP, placeholder numbers were used until certain emission estimates could be more firmly established. The reductions ultimately submitted toward ROP were short of the 9% target. The combination of this shortfall, a lack of modeled control strategies, and non-inclusion of rules needed to bring the area into attainment led to a determination of incompleteness by the EPA.

At the request of the NCTCOG, commission staff met to discuss the 9% ROP portion of the DFW SIP. As the metropolitan planning organization for the DFW region, the NCTCOG is concerned about meeting transportation conformity. The SIP that was submitted in March 1999 contained for the first time a transportation conformity budget for NO_x. Because the SIP was found to be incomplete, the NO_x budget will be unusable and it will be extremely difficult to show conformity in the future. This will affect the region's ability to implement their metropolitan transportation plan.

Potential emission reduction credits were investigated that were not claimed in the March 1999 SIP in order to make up the ROP shortfall. The focus was on VOC reductions because less would be needed to make up a shortfall compared to NO_x emission reductions. The ROP lacked about 20% of the VOC reductions needed, which amounted to 5.87 tpd. A complete 9% ROP SIP would allow certain transportation projects from being put on hold. Reductions not previously considered were identified that would make up the shortfall in order to complete the 9% ROP requirements for the years 1996-99. These technical corrections are included in this revised SIP.

EPA's method for calculating ROP targets involves growing emissions out to the future year of attainment. Because of the tremendous growth in the DFW area over the last several years, the on-road and non-road mobile source emission estimates for NO_x from the years 1997, 98, and 99 outweigh the NO_x emission reductions from mobile source control strategies implemented in the area. As a result of this, the commission has decided to pursue the full 9% ROP through the use of VOC reductions.

However, since photochemical modeling for the DFW area shows that NO_x reductions are necessary in bringing the area into attainment, the following actions have taken place. The State of Texas submitted to the EPA on November 13, 1998 a letter indicating that this most recent photochemical modeling has triggered their condition of the NO_x waiver and thus it should be rescinded. The EPA initiated steps to rescind the NO_x exemption which was made effective on June 21, 1999.

5.2 CALCULATION OF THE 1999 TARGET LEVELS

Table 5.2-1 shows the amount of VOC reductions needed to achieve the ROP requirements. EPA has devised a complex method for calculating the rate of progress target. This process was developed to ensure that the rate of progress calculation reflected growth in the emissions inventory, and appropriately accounted for both creditable and non-creditable emission reductions achieved since 1990.

The VOC calculation in Table 5.2-1 starts with the 1990 Base Year EI (Step 1). This EI is then adjusted to remove non-creditable reductions that occurred since 1990 (Steps 2, 3, and 5). This new EI is called the "Adjusted Base Year EI". The ROP percentage of 9% in this case is taken from this new Adjusted Base Year EI (Step 4). The 1999 Target Level is calculated in Step 7 by subtracting Steps 4 and 5 from Step 6. This new target level can be thought of as an ROP budget for the area. In Step 8, the uncontrolled 1999 forecast emissions inventory is listed. Step 9 is the difference between where the area would be in 1999 without controls (Step 8) and where they are required to be (their Target Level in Step 7). Step 10 lists the creditable reductions made through the 15% SIP, and Step 11 calculates the difference between Steps 9 and 10, to yield the remaining needed reductions for the ROP demonstration, or the excess.

Table 5.2-1

1999 ROP Required VOC Emissions Target Calculations
Dallas/Fort Worth Ozone Nonattainment Area Ozone
Season VOC Tons Per Day January 18, 1999

Step	Emissions Basis	Stationary		Mobile		Total
		Point	Area	On-road	Non-road	
1	1990 ROP Nonattainment Area Base Year EI	63.80	174.02	306.60	105.19	649.61
2	Adjusted Base Year EI Relative to 1996	63.80	174.02	204.35	105.19	547.36
3	Adjusted Base Year EI Relative to 1999	63.80	174.02	192.59	105.19	535.60
4	9% of Adjusted Base Year EI Relative to 1999					48.20
5	RVP and Fleet turnover correction [steps (2-3)]			11.76		11.76
6	1996 Target Level					465.52
7	1999 Target Level [steps (6-5-4)]					405.56
8	1999 Emissions Forecast (Grown) With Pre-90 Control	25.10	182.02	247.75	119.35	574.22
9	Total Reductions Required by 1999 With Growth [steps (8-7)]					168.66
10	Creditable Reductions (1990-1996)	0.00	50.99	76.40	12.59	139.98
11	***Required Reductions 1996-1999***					28.68

Notes for On-Road Mobile

1. Forecast in step 8 is 1999 Emissions Forecast (Grown) With Pre-90 Control.
2. Base year on-road mobile emissions calculated with MOBILE5 for an ozone season weekday.
3. Adjusted base year on-road mobile emissions and 1999 forecast on-road mobile emissions calculated with MOBILE5A for an ozone season weekday.
4. Point source reductions from step 10 have been removed to avoid double counting.

5.3 CONTROLS TO ACHIEVE THE RATE OF PROGRESS TARGET

5.3.1

A summary of the reductions toward achieving the 9% ROP target are included in Table 5.3-1. The table shows VOC reductions net of growth from the 1990 baseline by 1999. Table 5.3-2 shows NO_x net of growth reductions that will occur from the 1990 baseline by 1999. Contingency measures for VOCs are included as well as further NO_x reductions that will occur by 2001.

Table 5.3-1

VOC ESTIMATES TOWARDS 9% ROP SIP - DALLAS/FORT WORTH

Emissions Inventory	1990	Percent	Growth	1999	Percent
Area Sources	174.02	26.8%	4.6%	182.02	31.7%
Point Sources	63.80	9.8%	-60.7%	25.10	4.4%
On-road Mobile Sources	306.60	47.2%	-19.2%	247.75	43.1%
Off-road Mobile Sources	105.19	16.2%	13.5%	119.35	20.8%
TOTALS	**649.61**		**-11.6%**	**574.22**	

ESTIMATED VOC REDUCTIONS

Control Strategy	**1999 Projected Tons Per Day**	**Reduction Tons Per Day**	**Percent of Requirement**
Aircraft Engines	6.73	1.52	5.30%
TCMs	247.75	3.74	13.04%
Windshield Washer Fluid	3.57	0.46	1.60%
1998 Vehicle Registration	244.18	3.57	12.45%
Utility engine 1997-1999	68.45	2.37	8.26%
UST Remediation	1.81	1.81	6.31%
Tier I, I/M, RFG	161.47	16.82	58.65%
	Subtotal	**30.29**	**105.61%**
Contingency Strategy			
Commercial Bakeries	0.51	0.15	0.77%
Offset Printing	0.55	0.24	1.23%
I/M, Tier I, RFG Phase II	247.75	10.94	56.14%
Naphtha Dry Cleaners	4.77	2.41	12.37%
Utility Engine 2000	68.45	0.92	4.72%
	Subtotal	**14.66**	**75.22%**

Required Target	**28.68**	100.00%
Creditable Reductions	**30.29**	105.61%
Excess	**1.61**	5.60%
Required Contingency	**19.49**	100.00%
Required Target + Contingency	**48.17**	100.00%
Total Reductions	**44.95**	93.30%
Excess	**3.22**	6.70%

Table 5.3-2

NO_x ESTIMATES FOR DALLAS-FORT WORTH

Emissions Inventory	1990	Percent	Growth	1999	Percent
Area Sources	19.99	3.6%	3.3%	20.64	3.1%
Point Sources	71.60	13.0%	0.1%	71.70	10.9%
On-road Mobile Sources	293.03	53.2%	16.2%	340.39	51.7%
Off-road Mobile Sources	166.05	30.2%	35.8%	225.54	34.3%
TOTALS	550.67		19.5%	658.27	

ESTIMATED NO_x REDUCTIONS		
Control Strategy	**1999 Projected Tons Per Day**	**Reduction Tons Per Day**
TU Reductions (by 12/31/98)	71.70	10.45
RFG, I/M, FMVCP Tier I	340.39	56.25
Off-road Heavy-Duty Diesel	153.74	11.98
	Subtotal	**78.68**
Further Reductions by 2001		
NO_x RACT (by 3/31/01)		10.93
I/M, Tier I, RFG Phase II	271.96	5.29
	Subtotal	**16.22**
Total Reductions by 2001		**94.90**

Mobile Source reductions due to FMVCP Tier I, Vehicle I/M and Reformulated Gasoline occurred between 1990 and 1999 and are included in the calculation of the target level.

5.3.2 Windshield Washer Fluid

In the September 11, 1998 issue of the *Federal Register* (63 FR 48819), EPA published the adopted national VOC emission standards for certain categories of consumer products under §183(e) of the FCAA. Title 40 CFR 59.203 (Standards for Consumer Products) states:

> (a) The manufacturer or importer of any consumer product subject to this subpart shall ensure that the VOC content levels in table 1 of this subpart and HVOC content levels in table 2 of this subpart are not exceeded for any consumer product manufactured or imported on or after December 10, 1998, except as provided in paragraphs (b) and (c) of this section, or in Secs. 59.204 or 59.206.

In turn, Table 1 limits automotive windshield washer fluid to 35 weight-% VOC. EPA calculated VOC reductions from this national consumer products rule to be 20% and allowed states to take this emission reduction credit in their SIPs. Consequently, Texas took credit in its SIPs for a 20% VOC reduction in emissions from consumer products, based upon EPA's national rule.

Prior to EPA's issuance of its national rule, Texas adopted a consumer products rule in 30 TAC Chapter 115, §§115.600, 115.610, 115.612-115.617, and 115.619. The limits for automotive windshield washer fluid (23.5 weight-%), nonaerosol glass cleaners (6 weight-%), nail polish removers (75 weight-%) in the Texas rule are more stringent than the corresponding limits in the national rule (35, 8 and 85 weight-%, respectively).

On May 13, 1999, Mr. Bruce Moore of EPA's OAQPS stated that the 35 weight-% limit for windshield washer fluid in the national rule represented the "status quo" (i.e., resulted in no reductions). Mr. Moore agreed that Texas could take credit for the difference between 23.5 and 35 weight-%. Therefore, Texas is taking VOC emission reduction credit for this difference. As with the other Texas rules, the Texas consumer products rule is enforced by the Field Operations Division, and unresolved violations result in penalties as appropriate.

Table 5.3-3

DFW Windshield Wiper Fluid

35-23.5%	1990		1999		NEW 1999		REDUCTIONS	
COUNTY	**TPY**	**TPD**	**TPY**	**TPD**	**TPY**	**TPD**	**TPY**	**TPD**
COLLIN	85.73	0.2349	135.68	0.3717	120.08	0.3290	15.60	0.0427
DALLAS	601.61	1.6482	709.49	1.9438	627.90	1.7203	81.59	0.2235
DENTON	88.81	0.2433	132.12	0.3620	116.93	0.3204	15.19	0.0416
TARRANT	379.93	1.0409	494.40	1.3545	437.54	1.1987	56.86	0.1558
TOTAL	1156.09	3.1674	1471.69	4.0320	1302.44	3.5683	169.24	0.4637

35%	1990		1999		NEW 1999		REDUCTIONS	
COUNTY	**TPY**	**TPD**	**TPY**	**TPD**	**TPY**	**TPD**	**TPY**	**TPD**
COLLIN	85.73	0.2349	135.68	0.3717	88.19	0.2416	47.49	0.1301
DALLAS	601.61	1.6482	709.49	1.9438	461.17	1.2635	248.32	0.6803
DENTON	88.81	0.2433	132.12	0.3620	85.88	0.2353	46.24	0.1267
TARRANT	379.93	1.0409	494.40	1.3545	321.36	0.8804	173.04	0.4741
TOTAL	1156.09	3.1674	1471.69	4.0320	956.60	2.6208	515.09	1.4112

23.5%	1990		1999		NEW 1999		REDUCTIONS	
COUNTY	**TPY**	**TPD**	**TPY**	**TPD**	**TPY**	**TPD**	**TPY**	**TPD**
COLLIN	85.73	0.2349	135.68	0.3717	103.80	0.2844	31.89	0.0874
DALLAS	601.61	1.6482	709.49	1.9438	542.76	1.4870	166.73	0.4568
DENTON	88.81	0.2433	132.12	0.3620	101.07	0.2769	31.05	0.0851
TARRANT	379.93	1.0409	494.40	1.3545	378.21	1.0362	116.18	0.3183
TOTAL	1156.09	3.1674	1471.69	4.0320	1125.84	3.0845	345.85	0.9475

POPULATIONS

County	**1990**	**1999**
Collin	264036	417874
Dallas	1852810	2185052
Denton	273525	406905
Tarrant	1170103	1522627

5.3.3 Transportation Control Measures

Additional Credits from Existing 15% ROP TCMs

On July 7, 1999, the EPA responded to questions posed by the commission regarding TCMs and their appropriateness in SIPs. Specifically, the 9% ROP must show all projects implemented for the 15% ROP SIP before 1996 and remaining projects that will be counted as emission reduction in the 9% ROP SIP. Therefore, it was determined that benefits from TCMs, as listed in the submitted DFW 9% ROP, were not all inclusive. Specifically, benefits were only determined for those projects being funded between November 1996 and November 1999, and operational by November 1999. This initial analysis did not include benefits to those projects accounted for in the previous 15% ROP (through November 1996). Many of these TCMs have a long design life that will have benefits in November 1999. Examples of these projects include HOV lanes, corridor management, park-n-ride lots, bicycle/pedestrian, commuter rail, light rail, intersection improvements, and signal improvements. Only those signal improvements that were implemented in calendar year 1996 were re-evaluated for the 9% ROP. Table 5.3-4 summarizes the approach to quantifying expected benefits to these long-term projects. November 1996 benefits are documented in NCTCOG's Transportation Control Measure Effectiveness Study, Technical Report, August 1996. An emission factor ratio (based on EPA's MOBILE5a model) of 0.874, suggests a loss of 12.6% in benefits over a three year period. Therefore, accounting for projects with a long design life from the 15% ROP, an additional VOC reduction of 3.07 tpd is expected by November 1999.

Table 5.3-4

LONG TERM 1996 TCM's EVALUATED TO 1999 Volatile Organic Compounds			
TCM	**November 1996 Benefits (lbpd)**	**1996 to 1999 Emission Factor Adjustment**	**November 1999 Benefits (lbpd)**
HOV	398	0.874	348
Corridor Management	1,088	0.874	951
Park-n-Ride Lots	154	0.874	135
Bicycle/Ped	22	0.874	19
Commuter Rail	9	0.874	8
Light Rail	27	0.874	24
Intersection Improvements	2,085	0.874	1,822
Signal Improvements (Implemented in 1996)	3,249	0.874	2,840
Total Pounds per Day (lbpd)			6,147
Total Tons per Day (tpd)			3.07

Appendix G includes the inventory of TCMs implemented through November 1996, as determined for the 15% ROP SIP.

Additional TCMs Implemented Between 1996 and 1999

As submitted in late 1998, the 9% ROP inventoried TCM's to be let, constructed, and operational by November 1999, and placed each project in one of two categories. Projects receiving funds between November 1996 and November 1998 were categorized as committed. As originally identified in the 9%

ROP, committed projects accounted for 0.29 tpd of VOC reductions. Projects receiving funds between November 1998 and November 1999 were categorized as contingent. Contingent projects account for an additional 0.38 tpd of VOC reductions. Since one year has elapsed since this evaluation occurred, it was determined to be appropriate to consider the extra 0.38 tpd as committed. Therefore, this 9% ROP SIP is accounting for the additional 0.38 tpd of VOC reductions from committed TCMs in 1999. In summary, a total of 0.67 tpd has been identified from implementing TCMs between November 1996 to November 1999. Table 5.3-5 summarizes these SIP commitments.

Table 5.3-5

DALLAS-FORT WORTH OZONE NONATTAINMENT AREA 9% RATE OF PROGRESS STATE IMPLEMENTATION PLAN TRANSPORTATION CONTROL MEASURE COMMITMENTS		
TCM Category	**1997-1999 Implementation Levels**	**1999 VOC Emission Reductions (per day)**
Intersection Improvements/ Signal Improvements	360 Locations	1,141.9 lbs
Freeway Corridor Management	4 Projects	72.0 lbs
Travel Demand Management	2 Projects	54.6 lbs
Park and Ride Lots	1 Lot	6.4 lbs
Alternative Fuel Vehicles	387 Vehicles	0.0 lbs
Ped/Bicycle Facilities	19 Miles	34.7 lbs
Light Rail	9 Miles	29.2 lbs
Total (lbs)		1,338 lbs
Total (tpd)		0.67 tons

Appendix G includes the inventory of TCMs implemented from November 1996 through November 1999, as inventoried for the 9% ROP SIP. TCM details include location, length, emission reductions, implementation date, and other information within each category, where appropriate.

Two project categories were established at the time the analysis was conducted because of EPA's requirement to identify projects by location, length, emission reductions, implementation date, and other information within each category. NCTCOG believes this creates an obstacle to efficient record management, since a revision must be made to the SIP each time a project location changes. Therefore, since project descriptions are apt to change due to a wide variety of circumstances, a conservative approach was taken in the development of the 9% ROP SIP originally submitted.

5.3.4 Updated Vehicle Registration Distributions

In developing MOBILE5a_h emission factors for the 1999 on-road mobile source emission inventory, observed 1996 vehicle registration distributions were originally used as input since it was the latest and best data available when the emission inventory was being created (December 1997). NCTCOG and the commission determined that it would be sensible to update the vehicle registration distributions with the most recent data available from TxDOT Vehicle Titles and Registration Division. Updating the vehicle fleet with current data, from 1996 to 1998, will allow the inventory to take credit for cleaner and more emission efficient vehicles due to annual vehicle fleet turnover. The VOC emission benefits associated with this change in the DFW nonattainment area is a reduction of 3.57 tpd. Final 1998

vehicle registration distributions for Dallas/Tarrant Counties (core urban) and Collin/Denton Counties (core rural) are summarized in Tables 5.3-6 and 5.3-7, respectively.

Table 5.3-6

DALLAS-FORT WORTH NONATTAINMENT AREA
1998 VEHICLE REGISTRATION DISTRIBUTION FOR
DALLAS AND TARRANT COUNTIES (CORE URBAN)

MODEL YEAR	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
1998	0.097	0.093	0.112	0.030	0.097	0.093	0.125	0.182
1997	0.088	0.097	0.142	0.054	0.088	0.097	0.113	0.144
1996	0.080	0.074	0.066	0.045	0.080	0.074	0.107	0.137
1995	0.094	0.084	0.091	0.179	0.094	0.084	0.066	0.112
1994	0.076	0.078	0.064	0.043	0.076	0.078	0.077	0.097
1993	0.071	0.060	0.051	0.033	0.071	0.060	0.063	0.075
1992	0.062	0.051	0.034	0.034	0.062	0.051	0.044	0.054
1991	0.061	0.050	0.033	0.029	0.061	0.050	0.069	0.040
1990	0.059	0.047	0.037	0.030	0.059	0.047	0.061	0.038
1989	0.054	0.048	0.032	0.027	0.054	0.048	0.045	0.042
1988	0.048	0.043	0.039	0.030	0.048	0.043	0.035	0.038
1987	0.041	0.033	0.038	0.036	0.041	0.033	0.033	0.041
1986	0.037	0.041	0.041	0.051	0.037	0.041	0.031	0.000
1985	0.032	0.035	0.049	0.044	0.032	0.035	0.035	0.000
1984	0.025	0.031	0.028	0.040	0.025	0.031	0.026	0.000
1983	0.015	0.019	0.014	0.017	0.015	0.019	0.013	0.000
1982	0.010	0.017	0.020	0.026	0.010	0.017	0.015	0.000
1981	0.008	0.013	0.012	0.026	0.008	0.013	0.014	0.000
1980	0.006	0.009	0.010	0.034	0.006	0.009	0.008	0.000
1979	0.007	0.013	0.015	0.049	0.007	0.013	0.008	0.000
1978	0.006	0.012	0.010	0.033	0.006	0.012	0.005	0.000
1977	0.004	0.010	0.016	0.022	0.004	0.010	0.003	0.000
1976	0.003	0.007	0.013	0.015	0.003	0.007	0.001	0.000
1975	0.002	0.003	0.010	0.014	0.002	0.003	0.001	0.000
1974	0.014	0.032	0.023	0.060	0.014	0.032	0.003	0.000
Total	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Table 5.3-7

DALLAS-FORT WORTH NONATTAINMENT AREA
1998 VEHICLE REGISTRATION DISTRIBUTION FOR
COLLIN AND DENTON COUNTIES (CORE RURAL)

MODEL YEAR	LDGV	LDGT1	LDGT2	HDGV	LDDV	LDDT	HDDV	MC
1998	0.092	0.109	0.164	0.019	0.092	0.109	0.074	0.159
1997	0.104	0.126	0.220	0.024	0.104	0.126	0.088	0.165
1996	0.101	0.094	0.101	0.063	0.101	0.094	0.093	0.154
1995	0.109	0.095	0.081	0.139	0.109	0.095	0.033	0.122
1994	0.088	0.084	0.064	0.016	0.088	0.084	0.077	0.092
1993	0.081	0.062	0.044	0.020	0.081	0.062	0.067	0.075
1992	0.068	0.053	0.023	0.028	0.068	0.053	0.061	0.055
1991	0.063	0.047	0.031	0.046	0.063	0.047	0.060	0.035
1990	0.055	0.041	0.027	0.032	0.055	0.041	0.061	0.038
1989	0.048	0.042	0.030	0.012	0.048	0.042	0.050	0.038
1988	0.040	0.036	0.015	0.026	0.040	0.036	0.041	0.033
1987	0.032	0.027	0.013	0.040	0.032	0.027	0.038	0.034
1986	0.028	0.033	0.032	0.040	0.028	0.033	0.035	0.000
1985	0.022	0.027	0.023	0.054	0.022	0.027	0.054	0.000
1984	0.017	0.023	0.018	0.045	0.017	0.023	0.044	0.000
1983	0.010	0.013	0.014	0.026	0.010	0.013	0.022	0.000
1982	0.007	0.013	0.014	0.023	0.007	0.013	0.023	0.000
1981	0.005	0.010	0.007	0.023	0.005	0.010	0.027	0.000
1980	0.004	0.006	0.017	0.035	0.004	0.006	0.017	0.000
1979	0.005	0.010	0.015	0.067	0.005	0.010	0.013	0.000
1978	0.004	0.009	0.010	0.046	0.004	0.009	0.010	0.000
1977	0.003	0.007	0.005	0.028	0.003	0.007	0.008	0.000
1976	0.002	0.005	0.009	0.021	0.002	0.005	0.001	0.000
1975	0.001	0.002	0.004	0.033	0.001	0.002	0.001	0.000
1974	0.013	0.024	0.018	0.094	0.013	0.024	0.004	0.000
Total	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

A simple analysis was performed by adjusting final emission estimates, by county, with an adjustment factor accounting for the percent change in emission rates from 1996 to 1998 vehicle registration distributions. Specifically, VOC emission factors in Dallas and Tarrant Counties (core urban) were reduced by 2.36%. Likewise, VOC emission factors in Collin and Denton Counties (core rural) were reduced by 3.99%. Therefore, VOC emission benefits associated with updating observed vehicle registration data in the DFW nonattainment area is a reduction of 3.57 tpd.

5.4 1999 MOTOR VEHICLE EMISSIONS BUDGETS

Motor Vehicle Emission Budgets for transportation conformity purposes are established at 147.22 tpd for VOC and 284.14 tpd for NO_x. These figures have been calculated by subtracting all on-road mobile source reductions from the 1999 on-road mobile source emissions forecast. These calculations are shown below:

	VOC	**NO_x**
1999 On-Road Emissions Forecast	247.75 tpd	340.39 tpd
1996 Tier1, I/M, RFG credits	69.46	0.00
1999 Tier1, I/M, RFG credits	16.82	56.25
1996 Transportation Control Measures	6.94	0.00
1998 Vehicle Registration	3.57	0.00
1999 Transportation Control Measures	3.74	0.00
1999 Motor Vehicle Emissions Budget	147.22 tpd	284.14 tpd